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ABSTRACT

Much information of interest to bilingual education policymakers has emerged from basic research on language learning, bilingualism, and cognition. Among the conclusions drawn from it are the following: (1) bilingual education is superior to submersion education in many contexts;(2) one major bilingual education goal should be development of the full repertoire of English linguistic skills, in preparation for mainstreaming; (3) time spent learning the native language in bilingual programs is not time lost in developing English skills; (4) children can become fluent in a second language without losing the first language, and maintenance of the first language does not retard second language development; (5) there is no cognitive cost, and there may be advantages, in the development of bilingualism in children; (6) bilingual education programs should have the flexibility of adjusting to the large individual and cultural differences among children, including need for lengthy bilingual education; (7) educators should understand that for primary grade children second language learning may be a slow process and that older learners can learn languages quickly and efficiently; (8) reading should be taught in the native language; and (9) actions upgrading the status of limited-English-speaking children's culture and language contribute to their opportunities for friendship with native English-speaking children. (MSE)

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WHAT RESEARCH EVIDENCE SAYS ABOUT BILINGUAL EDUCATION

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It appears to me that an audience like this hardly needs to be told that in the last several months, we have seen renewed and vigorous controversy over bilingual education, both at the local and national levels.

I am not engaged in the practice of bilingual education. Rather, I am an experimental psychologist with some background in linguistics. In some ways, I am not exactly sure what I have done to deserve the audience of such a distinguished group of bilingual educators.

However, what I think I am here for, based on my understanding of the debate on bilingual education, is to try to put some additional light on the debate from the perspective of a researcher. My understanding of the debate is that the arena in which it is conducted is hazardous territory for objectivity. It is in many ways a vortex of poorly-informed political and social concerns. One senses the need for some objectivity that research might provide as guidance to policy.

One mission that I perceive for myself today, then, is to try to summarize for you some of the major -- albeit tentative, for all research is tentative -- conclusions that can be drawn from research for policy considerations.

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At the same time, speaking as an advocate for good sound research on bilingualism in children that can have some influence on bilingual education policy, it would be remiss for me not to point out one of the ways in which research is most misunderstood.

This has to do with the belief that scientific research is objective and free of human social influence. All science -- even psychology, as my friends in the natural sciences like to point out -- is human activity. Especially psychology and the social sciences, I would like to add.

That is to say, in my talk today, I would like to give you the rather positive conclusions that can be drawn from research -- that is, from the perspective of the advocate of bilingual education. I am sure that the information on research that I present to you this morning will come as welcome news for most of you.

At the same time, if you like my conclusions, in exchange, I would like to instill in you the idea that research itself should be inspected and interpreted through yet another lens -- the view that the science itself is a human activity, and therefore is subject to all the pitfalls of humanity.

Thus, the secondary message that I would like to deliver today is that with the acceptance of research conclusions must come the acceptance of responsibility to think about them -- the conclusions -- in their proper perspective. What I do not want you to go away with from this talk, then, is the idea that research is going to provide all of the answers to the concerns of bilingual education. Such an expectation would end up placing too much of a burden on research, and can lead to re-enactments of the many conflicts that we have seen in the past between researcher and practitioner. Rather, I would like

you to go away with the idea that we -- both researchers in bilingualism and practioners of bilingual education -- are all engaged in the struggle to free ourselves of our own individual and collective biases in conducting our work.

Before getting to the substantive conclusions from current research, in order to drive the point home about the social and human nature of research, let me take you on a brief detour. I would like to provide a brief example -- my favorite one, in fact so favorite that it consumes the entire first chapter of my book -- on the idea of whether bilingualism is harmful or beneficial to mental development. It illustrates the biases that can be found in so-called objective science.

Consider the following set of contrasting conclusions about the effects of bilingualism on child development. In 1952, a noted developmental psychologist George Thompson drew the following conclusion in his influential textbook on child psychology:

> "There can be no doubt that the child reared in a bilingual environment is handicapped in his language growth. One can debate the issue as to whether speech facility in two languages is worth the consequent retardation in the common language of the realm."

Ten years later, in 1962, Elizabeth Peal and Wallace Lambert concluded their famous study of bilingual students in Montreal with the following remarks:

> "[The bilingual youngster can be seen as someone] whose wider experiences in two cultures have given him advantages which a monolingual does not enjoy. Intellectually his experience with

two language systems seems to have left him with a mental flexibility, a superiority in concept formation, a more diversified set of mental abilities.... In contrast, the monolingual appears to have a more unitary structure of intelligence which he must use for all types of intellectual tasks."

When faced with such contradictory conclusions, we must ask the following question: What is the source of the differences in these conclusions? When you look at the literature, the common attribution is to scientific methodology. The studies that were summarized by George Thompson are often criticized for poor application of the scientific method. Peal and Lambert's study, and the many subsequent studies that support the conclusion about the positive effects of bilingualism on cognitive ability, are praised for having better method. The idea is that if you can only design better studies, the truth can be found about how bilingualism affects the mind.

This belief -- the standard belief about the progress of science, really -- is very rarely the case. I would like to argue -- following the steps of non-positivistic and pragmatic philosophers of science -- for the importance of looking into the social context in which the research has been conducted.

In 1982, I had the luxury of having the time and resources to read the entire literature on this subject. Specifically, I was interested in where the term "language handicap" caused by bilingualism came from. How did people like George Thompson, whom I just quoted from, arrive at the conclusions about the negative effects of bilingualism?

The work that supposedly showed the negative effects of

bilingualism can be traced back to the work conducted at the turn of the century with concern about the intelligence test scores of the so-called "new immigrants", arriving in the United States after about 1880. It is important, then, to find out who these new immigrants were, and how they were thought of in the society at large.

A capsule characterization of these new immigrants can be found in the Dillingham Commission's 1906 report, summarized by immigration historian Maldwyn Jones in the following way:

> "This new immigration had consisted, the commission declared, largely of unskilled male laborers, a large proportion of whom had come to the United States not as permanent settlers but simply as transients. Almost entirely avoiding agriculture, they had flocked to the industrial centers of the East and Middle West, where they had congregated together in sections apart from native Americans and the older immigrants to such an extent that assimilation had been slow."

Francis Walker, president of MIT during the turn of the century, aside from being the leader of a prestigious technical institution, found the time in his busy schedule to utter these sympathetic words about the new immigrants:

> "These immigrants are beaten men from beaten races, representing the worst failures in the struggle for existence. Europe is allowing its slums and its most stagnant reservoirs of degraded peasantry to be drained off upon our soil."

A major concern during this period, among educators as well as among those advocating the restriction of immigration, was the low intelligence test scores of the new immigrant groups.

Carl Brigham, in his 1923 book titled "A Study of American Intelligence", explained the low intelligence test scores of the new immigrants by appealing to the large proportion of individuals from racial groups with poor genetic stock. He wrote:

> "Migrations of the Alpine and Mediterranean races have increased to such an extent in the last thirty or forty years that this blood now constitutes 70 percent or 75 percent of the total immigration. The representatives of the Alpine and Mediterranean races in our immigration are intellectually inferior to the representatives of the Nordic race which formerly made up about 50 percent of our immigration."

However, the argument used by the hereditarian psychologists -- that the genetic inferiority of the new immigrants accounted for their low intelligence test scores -- fell into trouble from attacks from the camp of psychologists who believed that intelligence was determined by environmental factors. These psychologists who emphasized the environment argued that the more recent immigrants had lower intelligence test scores because of their "language handicap", i.e., because they did not speak English well.

This is a complex and fascinating story that you can find in my book. The main point for today, though, is that the issue of "language handicap" became a critical bone of contention between the two camps: The hereditarians believed that there was no handicap -- that the lower IQ's of the new immigrants reflected bad genes. The environmentalists believed that there was a language handicap.

One of the most remarkable aspects of this debate that raged between the 20's and 30's was that both camps truly believed that IQ test performance was a good measure of intelligence.

What this meant was that they agreed that the new immigrants were not very smart, because that is what the test scores showed. They only disagreed as to the reason. For the hereditarian, it was bad genes. For the environmentalist, it was bad experience, most notably, bilingualism. This was the source of the belief, presumably based on objective research, that bilingualism retards mental development.

The early research on bilingualism and its effect on mental development can only be understood in the context of the concern over immigration at the turn of the century, in combination with the debate between the camps of psychologists with different explanations for their low IQ test scores.

As I mentionted earlier, this early research has often been criticized for poor methodology. For example, that when bilinguals were compared with monolinguals, the samples were different in their socioeconomic status, etc. Indeed, much of the current research takes this standard criticism in terms of scientific methodology. If only the right procedures were used, they would argue, then the truth would emerge.

For me, these criticisms are misguided, because they fail to take the social context of research into account. The early research is remarkable for its focus almost exclusively on low social status immigrant groups. The more recent work, with positive findings regarding bilingualism, is remarkable for its focus on the bilingualism of middle class and prestige groups. To me, why negative findings turned into positive findings has more to do with the social status of who was being studied, rather than with scientific methodology.

Having set the backdrop for how we must always be cognizant of the way in which research is conducted and interpreted, let me go on to discuss current conclusions.

I should add here that this part of my talk is really a joint presentation with Professor Catherine Snow of Harvard University. Professor Snow and I recently prepared a position paper for the House Education and Labor Committee on the role of research in policy decisions about bilingual education, and the conclusions that I would like to give to you today are based on the synthesis presented in that paper.

One of the best ways to characterize the history of the recent debate on bilingual education is by its inattention to relevant research. Both opponents and advocates of bilingual education have been influenced by popularly held opinions more than by expertise, and have invoked research, if at all, haphazardly, unsystematically, and without the desired thoroughness or rigor.

Before starting, I want to point out that when talking about research, we are really referring to a diverse collection of activities. Out of this diversity, it appears that one strain of research has dominated the spotlight in the current debate: <u>evaluation research</u>. This type of research has typically compared bilingual education to alternative forms of education, usually some form of submersion education with an ESL (English as a Second Language) component. Critics of bilingual education have used the rather equivocal conclusions from evaluation research to support their point.

Another strain of research, which I will call <u>basic research</u>, has received less emphasis in the debate over bilingual education. Basic research focuses on the linguistic and psychological processes in the

development of bilingual children. This research attempts to understand how children learn a second language, how their two languages interact, how language is related to thinking, and how children learn at different rates and develop different styles in their language and cognitive abilities. Basic researchers include psychologists, linguists, anthropologists, and sociologists. In general, they are not directly tied to the practice of bilingual education, although their research has often been conducted in the context of bilingual education.

Findings from basic research have been given insufficient consideration in the debate on bilingual education despite the fact that the information produced by basic research is crucial to policy considerations. The importance of basic research is heightened by the fact that there are severe technical and conceptual problems with the evaluation studies that have been carried out; indeed, these problems are so severe that relying on the results of these studies to guide policy-making could be dangerous. In the remainder of my talk, then, I will first summarize the problems with existing evaluation research studies and review their conclusions. I will then describe the findings from basic research studies as an alternative source of information to policy makers on bilingual education.

Evaluation Research

Attempts to evaluate the effectiveness of bilingual education programs, such as the often-cited studies by the American Institutes for Research and the Baker and de Kanter (so-called) synthesis of smaller evaluation studies, have been criticized by many researchers. Barry McLaughlin, for example, in his book Second Language Acquisition

in Childhood, provides in my opinion the most even-handed and thorough review of the criticisms. These studies generally concluded that bilingual programs are no more effective in promoting English language and other school skills than alternative programs. The alternative programs most often included in the evaluation were 'submersion' programs, in which non-English speaking children are placed in regular, mainstream classrooms, perhaps with a few hours a week of ESL (English as a Second Language) help. The lack of positive evaluation results has led opponents of bilingual education to argue for alternative instructional methods.

However, the lack of consistent findings in the evaluations, either for or against bilingual education, could result from either of the following states of affairs:

(a) in reality, bilingual education programs are no better than alternative programs, and evaluation research accurately reflects this reality;

(b) in reality, bilingual education programs are better than alternative programs, but the evaluation studies are doing a poor job of measuring this reality;

Policy makers in criticizing bilingual education have assumed circumstance (a) to be true, yet, as shown below, alternative (b) seems more likely. The lack of evidence for differences between the groups under these circumstances is an artifact of poor measurement.

One problem with evaluation research has been the selection of the comparison group against which the bilingual education treatment group is assessed. As Ann Willig has pointed out in a recent article, very few studies use the ideal method of "random assignment." In some studies, the comparison group included students who had formerly been

in bilingual programs, which made the findings uninterpretable by biasing the results in the direction of the comparison group (since students who have exited from bilingual programs with a transitional policy early tend to be the more academically gifted students).

An even more serious problem is the extreme diversity of instructional methodology within programs that have been labelled as bilingual. Recent studies by Lily Wong Fillmore as well as the recently-released survey of services provided to language minority students conducted by Development Associates, for example, show large variations in instructional practice across bilingual classrooms. Some classrooms in 'bilingual programs' looked very similar to some 'submersion' classrooms. Many 'bilingual' teachers were found to have limited proficiency in the children's native languages. Thus, although the evaluation studies allegedly compared bilingual programs with alternative programs, in fact they only compared programs labeled 'bilingual' with programs labeled 'submersion'. Without actual classroom observation and description of the instructional characteristics of the various programs, we do not really know what was being compared with what. Under these circumstances, any conclusions about the effectiveness of bilingual practice are premature. As Willig (1985) concluded in her review of this literature, "the overwhelming message derived from these data suggests that most research conclusions regarding the effectiveness of bilingual education reflect weaknesses of the research itself rather than effects of the actual programs" (p. 297).

At the same time that we urge caution because of the weaknesses of current evaluation research, we realize that legislators cannot

afford to wait for the results of more refined research. Researchers are often asked, given the information that we do have available, where the weight of the evidence falls.

Perhaps most illuminating in this regard is Willig's (1985) re-analysis of the same set of studies that were used in Baker and de Kanter's report. Willig employed a more rigorous method of analysis that systematically took into account the quality of the individual studies; this enabled her to rely more heavily on her conclusions on research of higher quality. She found evidence, contrary to Baker and de Kanter, in favor of bilingual education programs. Most important was her finding that the better the research methodology used in the studies the greater was the effect in favor of bilingual programs.

Thus at present, our best informed judgment forces us to conclude that circumstance (b) above is correct, that bilingual education is indeed superior to submersion, that poorly conducted evaluation research has obscured this fact, and that evaluation research conducted with greater rigor would bear out the superiority of bilingual education as an instructional method in many educational contexts. At the same time, I cannot overemphasize the importance of making improvements in the quality of research to evaluate bilingual programs in the future.

Turning now to basic research, the second type of research to which I alluded earlier, although basic research has often been conducted outside the context of the American bilingual education classroom, I would like to argue that it has generated conclusions that have a direct bearing on the current policy debate on bilingual education. Here we outline some of the major conclusions. Several comprehensive books on basic research in bilingualism and second

language acquisition have appeared in recent years (Cummins 1984; Grosjean 1982; Hakuta 1986; McLaughlin 1984, 1985), and can be referred to for details.

1. The nature of language proficiency.

People tend to think of language, like intelligence, as a single, simple, unitary capacity, easily measurable by a single test. However, recent research indicates that language is not a unitary skill, but rather a complex configuration of abilities. Most importantly, it seems that language used for conversational purposes is quite different from language used for school learning, and that the former develops earlier than the latter.

In the context of bilingual education, this means that children become conversationally fluent in English before they develop the ability to use English in academic situations. Bilingual programs are commonly criticized for keeping students too long, even after their English is 'adequate.' English skill judged as 'adequate' in an informal conversation, or even on a simple test, may not mean that the child's skills are adequate for understanding a teacher's explanation, for reading a textbook, or for writing a composition. Research tells us that conversational adequacy is not the appropriate criterion for mainstreaming students.

Thus, one major goal of bilingual education should be the development of the full repertoire of linguistic skills in English, in preparation for participation in mainstream classes.

2. The relationship of the two languages.

A major argument against bilingual education has been that it does not develop English rapidly enough because of its emphasis on the

native language. However, the major premise of this argument--that the time spent in the classroom using the native language is wasted or lost--is overwhelmingly rejected by research. First, a strong native language foundation acts as a support in the learning of English, making it easier and faster. Second, most of the learning that goes on in the native language transfers readily to English. This is true for content areas like math, science, and social studies, but also for skills in speaking, reading, and writing.

The implication of this finding is that time spent working and studying in the native language in bilingual classrooms is not time lost in developing the skills needed for school success. Becoming fluent in a second language does not necessarily mean losing the first language, nor does maintenance of the first language retard the development of the second language.

3. The relationship of language and general mental functioning.

There exists a persistent belief that for minority children, bilingualism confuses the mind and retards cognitive development. I discussed this belief earlier as being based on some early attempts to explain why immigrants from southern and eastern Europe were performing poorly on IQ tests. However, current research shows that there is no such thing as retardation caused by bilingualism; if anything, the development of a second language can have positive effects on thinking skills. The advantage of bilingual children over monolingual children in cognitive flexibility has been shown in a number of different studies, particularly in contexts of additive bilingualism where the second language is added while the native language is maintained.

These findings suggest that there is no cognitive cost to the

development of bilingualism in children, and very possibly bilingualism brings with it the added bonus of the enhancement of children's thinking skills.

4. The differences between individual children

Research cautions against attempting to formulate policy based on the observation of a limited number of children. There are, to be sure, documented cases of children who rapidly acquire a second language. However, the research shows these children to be the exception rather than the rule. There are tremendous variations across different children in the rate at which they learn the second language, and the process is not as painless as one would want to believe. The variation is due to a multitude of factors, including cultural background, the strength of the native language, home language environment, personality, attitude, and aptitude for learning languages.

Bilingual education programs should have the flexibility to adjust to these large individual and cultural variations. Furthermore, educators should develop the expectation that it is not abnormal for some students to need bilingual instruction for relatively long periods of time, whereas others for whom all the individual and cultural factors support second language learning, may exit from bilingual programs quite quickly.

5. The optimal age for second language acquisition

Many people believe that only children can learn a second language quickly and easily, and that if children have not mastered the second language by early school years, they never will. This belief has been responsible for a sense of urgency in introducing

English to non-English speaking children, and for worries about postponing children's exit from bilingual programs.

However, the belief that children are fast and effortless second language learners has no basis in fact. Teenagers and adults are much more efficient learners than elementary school children, and 4th to 7th graders are faster than 1st to 3rd graders. Especially for primary grade children, it is important to realize that second language learning is likely to be a very slow process; but also that it can still be successful if started much later than age 5 or 6.

Bilingual programs should be designed with the expectation that young school age children learn second languages rather slowly, and will need several years of learning before their English is as good as that of children who have been speaking it since birth. At the same time, it should be recognized that starting to speak English even as late as high school is no barrier to learning to speak it very well.

6. Literacy

Perhaps the major task of schools is teaching children to read. Although reading scores for American children in general have improved during the last 15 years, the most recent results of the National Assessment of Educational Progress indicate that Hispanic children still lag far behind English-speaking children in reading achievement. Furthermore, the gap widens at higher grades; poor reading skills in late elementary and secondary school children mean that such children are having trouble in all their school subjects, since their ability to comprehend textbooks in science, math, social studies, and other areas is inadequate.

Many factors contribute to children's being good or poor readers. One source of help to children's reading is the home; homes where

children have access to time alone with adults, where literacy is modeled, displayed and valued, and where parents' attitudes emphasize learning and school achievement typically produce children who have little difficulty learning to read. For children whose homes do not provide this kind of support to literacy, learning to read is a difficult task, and one which can much better be started in the home language--the language the child knows best. These children often don't really know 'what reading is all about'--the nature and purpose of literacy. Such children are at serious risk for failure to learn to read if the problem of reading itself is made more difficult for them by being presented in a language they control poorly. Children whose homes support literacy acquisition will be able to learn to read in a second language with little trouble; children whose homes can offer little support need the help of excellent schools, excellent teachers, and a reading program in the home language. Once the basic principles of reading are mastered in the home language, reading skills transfer quickly and easily to a second language.

Bilingual programs should concentrate on providing literacy skills in the home language, especially for those children whose parents have little education and poor literacy skills. The introduction of reading in English can be safely and efficiently postponed until after reading in the home language has been mastered. Reading achievement in English will be higher, and will be attained in less time, if reading is taught first in the home language.

7. Social interactional factors in second language acquisition

Obviously, having the opportunity to talk to a native speaker of English can only help in learning English. A criticism often leveled

at bilingual programs is that they isolate non-English speaking children from the English speakers who should be their friends, and who should be helping them learn English.

It is not the case, though, that merely playing with other children contributes much to the kind of language skills needed for school success. Young children can play, and have fun, and even 'talk' together with rather little solid knowledge of each other's language. Learning the English language skills needed for school success requires much more, for most children, than just the ability to find some English-speaking playmates.

Children, like adults, only interact with people they like or admire. If non-English speaking children in mainstream classrooms come from groups that are negatively stereotyped by the English speakers, they will not easily find English speaking playmates. A major factor in giving minority children access to social interactions with English speaking peers is upgrading the status of the minority group in the eyes of the majority. One way to do this is to recognize the value of the minority group's language and culture, for example, by using the language in the school and by hiring teachers and administrators from that ethnic background. A positive side effect of bilingual programs has been this kind of upgrading of previously stigmatized languages and cultures, as a result of making them official within the school.

Social interaction with English speakers can contribute to children's learning English. But just putting minority children in mainstream classrooms does not ensure interaction. Submersion in mainstream classrooms is most likely to result in rapid progress in English for children who do not come from negatively stereotyped

minority groups, and for children who have strong language, literacy, and school-relevant skills in their native language. Other children need bilingual programs.

Conclusions

Basic research is often dismissed as irrelevant to practical problems. However, much information of importance to policy makers in the area of bilingual education has emerged from research motivated by theoretical questions about language and cognition. Some conclusions we would draw based on our knowledge of the research literature are:

1) Evaluation research, although of extremely poor quality, suggests that bilingual education is superior to submersion education in many educational contexts.
2) One major goal of bilingual education should be the development of the full repertoire of linguistic skills in English, in preparation for participation in mainstream classes.
3) Time spent learning in the native language in bilingual education is not time lost in developing English.
4) Children can become fluent in a second language without losing the first language, and maintenance of the first language does not retard the development of the second language.
5) There is no cognitive cost to the development of bilingualism in children; very possibly bilingualism enhances children's thinking skills.
6) Bilingual education programs should have the flexibility of adjusting to the large individual and cultural differences among children. Furthermore, educators should develop the expectation that it is not abnormal for some students to need bilingual

instruction for relatively long periods of time.

7) Educators should expect that young children will take several years to learn a second language to a level like that of a native speaker. At the same time, they should not have lower expectations of older learners, who can typically learn languages quite quickly, and often end up speaking them just as well as younger learners.

8) Particularly for children who on other grounds are at risk for reading failure, reading should be taught in the native language. Reading skills acquired in the native language will transfer readily and quickly to English, and will result in higher ultimate reading acheivement in English.

9) A major problem for minority group children is that young English speaking children share the negative stereotypes of their parents and the society at large. Any action that upgrades the status of the minority child and his language contributes to the child's opportunities for friendship with native English speaking children.

In conclusion, I would like to make the following points.

First, basic research considerations show strong support for the fundamental tenets of bilingual education.

Second, research criticizing this conclusion is primarily from evaluation research that has not done service to the cause of bilingual education.

Third, returning to the point with which I opened this talk, at the same time that we acknowledge the support of research conclusions for the cause of bilingual education, research should not be idolized as the magical solution to the problems of bilingual education.

Scientists are people, and must constantly struggle to attain objectivity. My own belief is that both researchers and educators share the same duty of developing their "products" -- in the case of researchers, their product is the portrait of the bilingual mind, in the case of educators, it is the construction of a proper environment for the development of children -- we share the obligation to develop our products in a manner as free as possible of social prejudices and political windshear.

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